REMARKS

In response to the Official Action mailed on August 25, 2011, the application has been amended. No new matter has been added. Reconsideration of the rejections of the claims is respectfully requested in view of the above amendments and the following remarks.

On page 2 of the Official Action, claims 8 - 15 were rejected under 35 USC 103(a) as unpatentable over Goudarzi et al (US 2006/0021466 A1, referred to below as Goudarzi). This rejection is respectfully traversed.

Claim 8 describes a lead-free solder paste comprising powders of a first and second alloy powder, in which the first alloy powder contains 6 - 20 mass % of In. Goudarzi does not disclose or suggest such a solder paste.

Goudarzi discloses a solder paste which is a mixture of first and second alloys which differ from each other with respect to their liquidus temperatures by at most 10°C and preferably at most 5°C. The compositions of the first and second alloys are not defined in detail, and the only specific example of the first alloy is given in paragraph 022, in which a Sn-Ag-Cu alloy is the first alloy, and the only specific example of the second alloy is in paragraphs 024 and 025, in which the second alloy is a Sn-Ag alloy.

Paragraphs 012 and 020 of Goudarzi state that in one embodiment, the first alloy comprises Sn, Ag, and at least one additional metal which can be selected from the group consisting of Cu, Zn, Bi, Ni, and In. From this statement, the Official Action appears to conclude that Goudarzi discloses the possibility of the first alloy being a Sn-Ag-In or a Sn-Ag-In-Bi alloy. However, there is no specific disclosure in Goudarzi of any such alloys, and even if a person skilled in the art were to conclude that such alloys could be employed as the first alloy, he would have no idea as to the permissible contents of In and/or Bi.

As described in the previous amendment filed on June 1, 2010, the only description in Goudarzi of the appropriate amounts of the elements Zn, Bi, Ni, and In is found in paragraph 021 which states that in an embodiment in which the first alloy comprises Sn, Ag, Cu, and a fourth metal selected from Zn, Bi, Ni, and In, the content of the fourth metal should be from about 0.1 to about 5 wt %.

The position of the Official Action, set forth at the top of page 4 of the Official Action, is that Goudarzi does not limit the In content for the first alloy to at most 5 wt % except when In is added to a Sn-Ag-Cu alloy. While it is true that Goudarzi only mentions the content of In (or other fourth metal) in connection with an alloy also containing Sn, Ag, and Cu, it is also true that Goudarzi gives no other guidance to a person

skilled in the art concerning the appropriate content of In in the first alloy, and the logical conclusion of a person skilled in the art would be that for any composition of the first alloy, the content of In should be no higher than 5 wt %. If the suitable content of In in Goudarzi were dependent upon the presence or absence of Cu, it would follow that the suitable content of Cu in Goudarzi would depend upon the presence or absence of a fourth metal (such as In), yet Goudarzi never says that the Cu content should be modified in accordance with the presence or absence of a fourth metal. Accordingly, a person skilled in the art would reason that the suitable content of In in the first alloy, whether in the embodiment of paragraph 020 (a Sn-Ag-In alloy) or the embodiment of paragraph or 021 (a Sn-Ag-Cu-In alloy), is at most 5 wt %, which is below the minimum value of 6 mass % for In set forth in claim 8.

Therefore, since Goudarzi does not suggest the possibility of the In content of the first alloy being greater than 5 wt %, and since a person skilled in the art could not reasonably think of making the In content of the first alloy of Goudarzi greater than 5 wt %, Goudarzi does not suggest the feature of claim 8 that the In content of the first alloy is at least 6 mass %. As such, Goudarzi cannot render claim 8 obvious. Claim 8 and claims 9 - 16 which depend from it are therefore allowable.

Claims 13 and 14 are allowable as depending from claim 8 and are further allowable in their own right. Claim 13 states that

the first solder powder is selected from a Sn-Ag-In alloy and a Sn-Ag-In-Bi alloy, and the second solder alloy is selected from a Sn-Ag-Cu alloy and a Sn-Ag-Bi-Cu alloy. As discussed in the amendment filed on June 1, 2010, the only option presented in Goudarzi for the second alloy is a Sn-Ag alloy, and there is no suggestion in Goudarzi of a solder paste in which each of a first alloy and a second alloy has three or more components, as set forth in claim 13 and claim 14 which depends from claim 13.

With respect to claims 13 and 14, page 4 of the Official Action suggests that since Goudarzi states that the second alloy "comprises" Sn and Ag, a person skilled in the art would find it obvious to add other elements to the second alloy, such as Cu or Bi and Cu. If that is what Goudarzi meant to imply, surely Goudarzi would have said that the second alloy may contain any of the alloying elements which can be employed in the first alloy. What seems clear is that the only composition which Goudarzi actually invented is one in which the second alloy contains only Sn and Ag, and there is no indication that the effects intended by Goudarzi are achievable except when the second alloy contains only Sn and Ag. As such, there is nothing in the disclosure of Goudarzi that could suggest to a person skilled in the art the compositions set forth in claims 13 and 14.

New claims 17 - 22 describe additional features of the present invention. These claims are allowable as depending directly or ultimately from claim 8.

In light of the foregoing remarks, it is believed that the present application is in condition for allowance. Favorable consideration is respectfully requested.

Respectfully submitted,

Michael Tobias
Registration Number 32,948
Customer No. 27649

1629 K Street, N.W., Suite 300
Washington, D.C. 20006
Telephone: (301) 571-0052
Facsimile: (301) 571-0069
Date: January 25, 2011

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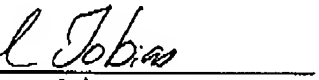
Signature 
Michael Tobias